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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/758,836

01/16/2004

Howard Fein

PRP104US

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23623

7590

06/27/2006

AMIN, TUROCY & CALVIN, LLP
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CLEVELAND, OH 44114

EXAMINER

LIVEDALEN, BRIAN J

ART UNIT

PAPER NUMBER

2878

DATE MAILED: 06/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/758,836	FEIN ET AL.	
	Examiner	Art Unit	
	Brian J. Livedalen	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 9-13 and 15-20 is/are rejected.
- 7) ☒ Claim(s) 5, 7, 8, 14 and 21-23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The action is in response to amendment filed 5/11/2006. Claims 1-23 are pending.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 6, and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vock (5798519) in view of Harris et al. (6388788).

In regard to claims 1 and 16, Vock discloses (fig. 4) an imaging system having a sensor with pixels (77) and an image transfer medium (71) having a diffraction-limited spot size wherein the ratio of the projected pixel area in the object plane to the diffraction limited spot size area in the object plane is from about 5:1 to about 1:12. The widths and diameter dimensions are also met as well as the ratio of 1.9:1 to about 1:1.9 because Vock discloses a ratio of ~ 1:1. Vock fails to disclose the specific sizes of the pixels and spot size (column 9, line 53 – column 10, line 15). However, Harris discloses (fig. 6) an imaging system having a sensor (520) having pixels, the pixels having a pixel area between .01 microns² and 600 microns² (column 16, lines 20-21); and an image transfer medium having a diffraction limited spot size area in the object plane between .0003 microns² and 600 microns² (column 16, lines 23-26); wherein the

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pixels projected through the image transfer medium have a projected pixel area in the object plane between .0003 microns² and 600 microns² (column 26, lines 27-31). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the pixels and therefore diffraction limited spot size (taking into account the ~1:1 ratio) within the range taught by Harris in order to provide a sufficient resolution and density of pixels to produce an accurate image.

In regard to claims 2-4, 6, and 17-20; Harris discloses the diffraction limited spot size area in the object plane between .01 microns² and 100 microns² (column 16, lines 23-26); and the pixels projected through the image transfer medium have a projected pixel area in the object plane between .01 microns² and 100 microns² (column 26, lines 27-31); Vock discloses that the ratio of the projected pixel area in the object plane to the diffraction limited spot size area in the object plane is from about 5:1 to about 1:12 (column 9, line 53 – column 10, line 15). Harris further discloses the pixels being square and the same shape (column 16, lines 19-21), thus the width dimensions are also met as set forth above. Vock further discloses (fig. 7) a light source (182) providing at least about 75% of the illumination having a wavelength range from about 100 nm to about 2000 nm (column 27, lines 10-15).

In regard to claim 6, Vock discloses a single lens. Vock fails to disclose using two lenses. However, Harris discloses (fig. 6) two lenses (470, 490). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use two lenses in order to better focus the image.

Claims 9-13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vock (5798519) in view of Nagata et al. (6069743).

In regard to claim 9, Vock discloses discloses (fig. 4) an imaging system having a sensor with pixels (77) and an image transfer medium (71) having a diffraction-limited spot size; wherein the ratio of the projected pixel pitch in the object plane to the diffraction limited spot diameter in the object plane is from about 1:1.9 to about 1.9:1 (column 9, line 53 – column 10, line 15). Vock fails to disclose the pixel size or diffraction-limited spot diameter. However, Nagata discloses (fig. 1) an image sensor with pixels having a pixel pitch between .1 microns and 20 microns (column 12, lines 18-22). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the pixel pitch as taught by Nagata in order to produce an image with the desired accuracy. Furthermore, because Vock teaches ~ 1:1 ratio, the pixels projected through the image transfer medium have a projected pixel diameter in the object plane between .01 microns and 20 microns and the diffraction-limited spot diameter being between .01 microns and 20 microns.

In regard to claims 10, 11 and 15, Nagata discloses (fig. 1) the projected pixel pitch between .1 microns and 10 microns (column 16, lines 20-21); and the diffraction limited spot diameter is between .1 microns and 10 microns (column 12, lines 18-22); and Vock discloses that the ratio of the projected pixel pitch to the diffraction limited spot diameter is from about 1:1.25 to about 1.3:25 (column 9, line 53 – column 10, line 15).

In regard to claim 13, Vock discloses (fig. 4) using a single objective lens (71).

In regard to claim 12, Vock discloses a single lens. Vock fails to disclose using an objective lens and a transfer lens. However, Nagata discloses (fig. 1c) using an objective lens (G1) and a transfer lens (G4). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use an objective lens and a transfer lens in order to better focus the image.

Allowable Subject Matter

Claims 5, 7, 8, 14, and 21-23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Claims 5, 7, 8, 14, and 21-23 are neither anticipated nor made obvious by the prior art of record.

In regard to claims 5 and 14, the prior art fails to disclose an imaging system as set forth in claims 1 and 9, and in combination with two subsets of pixels having different areas.

In regard to claims 7 and 8, the prior art fails to disclose an imaging system as set forth in combination with a plurality of stacked pixels, where each pixel in a stack has substantially the same size.

In regard to claims 21-23, the prior art fails to disclose an imaging system as set forth in claims 1, 9, and 16, and in combination with a first lens positioned toward the object plane and a second lens positioned toward the sensor, the first lens sized to have a focal length smaller than the second lens to provide an apparent reduction of the one or more pixels within the object field plane.

Response to Arguments

Applicant's arguments with respect to claims 1-4, 6, 9-13, and 15-20 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments, see amendment, filed 5/11/2006, with respect to claims 5, 7, 8, 14, and 21-23 have been fully considered and are persuasive.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian J. Livedalen whose telephone number is (571) 272-2715. The examiner can normally be reached on 8:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on (571) 272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

bjl


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